WHAT IS CLAIMED IS:

1. A laminated optical waveguide array comprising

a plurality of plate-like optical waveguides made of a material having a predetermined refractive index; and

a plurality of spacer members having a lower refractive index than that of said optical waveguides and arranged alternately with said optical waveguides.

2. A laminated optical waveguide array, wherein each of said spac r members takes the form of one of a cylinder, a sphere and a plate.

3. A laminated optical waveguide array as set forth in Claim 2, wherein a vacancy which is not occupied by said spacer member between the adjoining waveguides is filled with a resin having a smaller refractiv index than that of said optical waveguides, whereby said adjoining waveguides are secured to each other.

4. A laminated optical waveguide array as set forth in Claim 2, further comprising:

a securing member for pressuring said laminated optical waveguides at opposite ends thereof in the direction of lamination so as to secure the waveguides entirely.

5. A laminated optical waveguide array as set forth in Claim 4, further comprising:

buffer members having a smaller refractive index than said optical waveguides and each arranged between each of the opposite ends of said laminated optical waveguides and said securing member.

6. A laser emission device comprising:

a semiconductor laser array having a plurality of laser emitting parts which are arranged in a fast axis direction as well as in a slow axis direction

each for emitting a laser beam of an elliptical cross-section which spreads in said fast and slow axis directions as it travels;

a plurality of optical fibers;

a collective lens; and

a laminated optical waveguide array composed of a plurality of plate-like optical waveguides made of a material having a predetermined refractive index and a plurality of spacer members having a lower refractive index than that of said optical waveguides and arranged alternately with said optical waveguides;

said optical waveguides being arranged in almost the same space as said laser emitting parts of said semiconductor laser array in said slow axis direction, each having almost the same width as the length of each of said laser emitting parts, and each having an incidence surface extending in said fast axis direction and an emission surface opposite to said incidence surface in the traveling direction of said laser beam;

said optical waveguides being laminated in said slow axis direction of said semiconductor laser array so that plural laser beams emitted from plural laser emitting parts divided from other laser emitting parts in said slow axis direction are entered into said incidence surface of a corresponding one of said optical waveguides to be collected in said fast axis direction and so that the collected laser beams are emitted from said emission surface of said corresponding optical waveguide;

said optical fibers being arranged in said slow axis direction to make incidence surfaces thereof respectively face said emission surfaces of said optical waveguides and having beam emission end portions bundled to take a predetermined shape so that laser beams emitted from said optical waveguides are emitted from said beam emission end portions of said optical

fibers to be collected to said predetermined shape; and

said collective lens being provided for collecting plural laser beams emitted from said beam emission end portions of said optical fibers to a target position.

7. A beam collecting device comprising:

an optical waveguide for collecting a beam entered into an incidence surface thereof to a predetermined position in a predetermined direction and for emitting said beam from an emission surface;

an optical fiber; and

refraction means provided between said optical waveguide and said optical fiber for diminishing the angle which the beam refracted at an incid nt surface of said optical fiber makes with the axis of said optical fiber in comparison with the angle which the beam before being refracted at said emission surface of said optical waveguide makes with the axis of said optical fiber.

8. A beam collecting device as set forth in Claim 7, wherein said refraction means comprises a filler having a predetermined refractive index and interposed between said emission surface of said optical waveguide and said incidence surface of said optical fiber.

9. A beam collecting device as set forth in Claim 7, wherein:

said predetermined position is either outside or inside said optical waveguide; and

said refraction means comprises a curved surface of either a concave or a convex curved in said fast axis direction, said curved surface being formed at at least one of said emission surface of said optical waveguide and said incidence surface of said optical fiber in dependence on said predetermined position and in dependence on the refractive index of said

optical waveguide, the refractive index between said emission surface of said optical waveguide and said incidence surface of said optical fiber and the refractive index of said optical fiber.

10. A laser emission device comprising:

a semiconductor laser array having a plurality of laser emitting parts which are arranged in fast and slow axis directions in a plane normal to the traveling direction of laser beams emitted, each for emitting a laser beam of an elliptical cross-section which spreads in said fast and slow axis directions as it travels, said laser emitting parts being divided into plural groups separated in said slow axis direction;

an optical waveguide array composed of a plurality of optical waveguides each provided with beam collecting means at an incidence surface thereof for collecting laser beams emitted from said laser emitting parts of each group in said fast axis direction and toward a predetermined position thereby to emit the collected laser beams from an emission surface thereof;

a plurality of optical fibers arranged in alignment respectively with said optical waveguides each for entering said collected laser beams emitted from said emission surface of one of said optical waveguides aligned therewith into an incidence surface thereof to emits said collected laser beams from an emission end portion thereof;

a collective lens for further collecting said collected laser beams emitted from each of said optical fibers; and

refraction means for diminishing the angle which each of said collected laser beams refracted at said incident surface of each of said optical fibers makes with the axis of each said optical fiber in comparison with the angle which each of said collected laser beams before being

refracted at said emission surface of said optical waveguide makes with the axis of each said optical fiber.

11. A laser emission device as set forth in Claim 10, wherein said refraction means comprises a filler filled between said emission surface of each of said optical waveguides and said incidence surface of each of said optical fibers aligned with each said optical waveguide.

12. A laser emission device as set forth in Claim 10, wherein said refraction means comprises a curved surface having one of a concave and a convex which are curved in said fast axis direction, said curved surface being formed at at least one of said emission surface of each of said optical waveguides and said incidence surface of each of said optical fibers aligned therewith.

13. A laser emission device as set forth in Claim 12, wherein:

said predetermined position to which each of said optical waveguides collects said laser beams is either outside or inside each said optical waveguide; and

whether to form said curved surface at said emission surface of each said optical waveguide or at said incidence surface of each said optical fiber and whether to make said curved surface either concave or convex dep nd on said predetermined position, the refractive index of said optical waveguides, the refractive index between said emission surface of each said optical waveguide and said incidence surface of each said optical fiber and the refractive index of said optical fibers.